

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

IN THE CLAIMS

A listing of the claims will replace all prior versions and listings of claims in the application:

91 Claim 1 (Currently Amended): A laser wavelength conversion apparatus comprising:
a wavelength conversion element for performing wavelength conversion of laser light entered from an entrance end surface and delivering laser light of a shortened wavelength from an exit end surface;

a heat sink surrounding a peripheral surface of said wavelength conversion element and having cooling fins;

a heater for uniform heating disposed in said heat sink ~~in such a state as to surround periphery and surrounding said peripheral surface~~ of said wavelength conversion element;

a temperature sensor for measuring a temperature of said wavelength conversion element; and

a heater controller for controlling an electric current supplied to said heater for uniform heating so that the temperature ~~detected~~ measured by said temperature sensor becomes a preset temperature,

wherein said wavelength conversion element is divided along a direction of an optical axis.

Claim 2 (Currently Amended): A The laser wavelength conversion apparatus as claimed in claim 1, ~~characterized in that of the~~

wherein of said cooling fins of said heat sink, ~~the~~ cooling fins located on side surfaces of the heat sink are arranged ~~in such a state so~~ as to extend in a vertical direction.

Claim 3 (Currently Amended): A The laser wavelength conversion apparatus as claimed in claim 1, ~~characterized in that~~

wherein said heater for uniform heating is a plurality of rod-shaped heaters arranged in said heat sink at equal intervals ~~in such a state~~ so as to surround ~~the periphery~~ said peripheral surface of said wavelength conversion element and ~~in such a state~~ as to extend in a direction of ~~an~~ said optical axis.

Claim 4 (Currently Amended): A The laser wavelength conversion apparatus as claimed in claim 1, ~~characterized in that~~

wherein said heater for uniform heating is a film-shaped heater disposed ~~in such a~~ state so as to surround an outer peripheral surface of said heat sink.

Q ,
Sond
Claim 5 (Currently Amended): A The laser wavelength conversion apparatus as claimed in claim 1, ~~characterized in that~~ further comprising:

heaters for temperature gradient correction placed on an entrance side end surface and an exit side end surface of said heat sink, ~~and~~

wherein said heater controller exercises temperature control such that an amount of heat generation from said ~~heater~~ heaters for temperature gradient correction on ~~an~~ said entrance side end surface ~~side~~ is larger than an amount of heat generation from said ~~heater~~ heaters for temperature gradient correction on ~~an~~ said exit side end surface ~~side~~.

Claim 6 (Currently Amended): A The laser wavelength conversion apparatus as claimed in claim 1, ~~characterized in that~~ further comprising:

a loop gas pipe for blowing a cooling gas uniformly from surroundings toward the exit side end surface of said wavelength conversion element,

wherein said loop gas pipe is disposed on an exit end surface side of said heat sink.

Claim 7 (Canceled).

Claim 8 (Currently Amended) A The laser wavelength conversion apparatus as claimed in claim 1, ~~characterized in that said wavelength conversion element is divided along a direction of an optical axis, and~~ further comprising:

a,
 ~~an anti-reflection coating is applied to end surfaces of divisional~~ the divided
wavelength conversion ~~elements~~ element.

9,
 ~~Claim 9 (Currently Amended) A The laser wavelength conversion apparatus as claimed in claim 1, wherein characterized in that said wavelength conversion element is divided along a direction of an optical axis, and optical polishing is applied to end surfaces of divisional~~ the divided wavelength conversion ~~elements~~ element comprise a polished surface.

Claim 10 (New): A laser wavelength conversion apparatus comprising:

42
 means for performing wavelength conversion of laser light entered from an entrance end surface and delivering laser light of a shortened wavelength from an exit end surface;

means for retaining heat surrounding a peripheral surface of said means for performing wavelength conversion and having cooling fins;

means for uniformly heating disposed in said means for retaining heat and surrounding said peripheral surface of said means for performing wavelength conversion;

means for measuring a temperature of said means for performing wavelength conversion; and

means for controlling an electric current supplied to said means for uniformly heating so that the temperature measured by said means for measuring the temperature becomes a preset temperature,

wherein said means for performing wavelength conversion is divided along a direction of an optical axis.

92
82
Claim 11 (New): The laser wavelength conversion apparatus as claimed in claim 10, wherein of said cooling fins of said means for retaining heat, cooling fins located on side surfaces of the means for retaining heat are arranged in such a state as to extend in a vertical direction.

Claim 12 (New): The laser wavelength conversion apparatus as claimed in claim 10, wherein said means for uniformly heating is a plurality of rod-shaped heaters arranged in said means for retaining heat at equal intervals so as to surround said peripheral surface of said means for performing wavelength conversion and to extend in a direction of said optical axis.

Claim 13 (New): The laser wavelength conversion apparatus as claimed in claim 10, wherein said means for uniformly heating is a film-shaped heater disposed so as to surround an outer peripheral surface of said means for retaining heat.

Claim 14 (New): The laser wavelength conversion apparatus as claimed in claim 10, further comprising:

means for temperature gradient correction placed on an entrance side end surface and an exit side end surface of said means for retaining heat,

wherein said means for controlling an electric current supplied to said means for uniformly heating exercises temperature control such that an amount of heat generation from said means for temperature gradient correction on said entrance side end surface is larger than an amount of heat generation from said means for temperature gradient correction on said exit side end surface.

Claim 15 (New): The laser wavelength conversion apparatus as claimed in claim 10, further comprising:

means for blowing a cooling gas uniformly from surroundings toward the exit side end surface of said means for performing wavelength conversion,

wherein said means for blowing a cooling gas is disposed on an exit side end surface of said heat means for retaining heat.

Claim 16 (New) The laser wavelength conversion apparatus as claimed in claim 10, further comprising:

means for inhibiting reflection applied to end surfaces of the divided means for performing wavelength conversion.

Claim 17 (New) The laser wavelength conversion apparatus as claimed in claim 10,

92
C-2

wherein end surfaces of the divided wavelength conversion mean comprise a polished

surface.
